Short report

Partner notification in HIV-1 infection: a population based evaluation of process and outcomes in Scotland

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Abstract
Objectives: To evaluate the process and outcomes of HIV partner notification (PN) activity in Scotland.
Design: Retrospective population based study.
Subjects: 114 adults newly diagnosed with HIV infection (index patients) in Scotland between September 1995 and August 1996.
Setting: Healthcare settings in which all 114 new HIV diagnoses were made: 42 (37%) from genitourinary medicine; 32 (28%) infectious diseases; 18 (16%) general practice; and 22 (19%) from other sites.
Main outcome measures: Number of partners notified and tested up to 9 months after initial diagnosis.
Results: Of 114 index patients (IPs), information on current partners was available for 102 (89%). PN was not appropriate for 47 of the 102 IPs. The remaining 55 IPs identified 63 current partners at risk, of whom 51 were notified: 44 underwent HIV testing, which yielded 11 new HIV positive diagnoses. Information on previous partners was available for only 56 IPs (49%). PN was not appropriate for 30 of the 56 IPs; the remaining 26 IPs identified 46 previous partners at risk, of whom 12 were notified: four were tested, but yielded no new diagnoses.
Conclusions: Notification of current partners was performed well and was an effective strategy for identification of HIV positive individuals at a presymptomatic stage. Notification of previous partners was limited. Partner notification was attempted in a wide range of healthcare settings. Given the clinical effectiveness of antiretroviral therapy, partner notification as a tool towards early diagnosis of HIV disease deserves renewed attention.
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Keywords: HIV; contact tracing

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Introduction

Partner notification (PN) is a well established strategy for control of sexually transmitted infections (STIs). Partner notification can be either patient led (where the index patient approaches the partner at risk), or provider led (where a trained healthcare worker notifies the partner that they have been at risk of an infection, without disclosing the identity of the index patient).[1]

Considerable professional skill and sensitivity is required in partner notification work and the concept of partner notification as a measure to contain the spread of HIV infection has been controversial.[2] Partner notification for HIV infection is advocated by the UK Departments of Health,[3 4] but baseline population based data on the current extent and type of partner notification activity are lacking.

This study was conducted to examine the status of partner notification in Scotland in the mid 1990s, in terms of the extent and outcomes of partner notification. A proportion of the data collected also contributed to a European Commission Network study on HIV partner notification conducted in eight countries.

Subjects and methods

All newly diagnosed adults with HIV infection (index patients) in Scotland within the 12 month period of 1 September 1995 to 31 August 1996 were defined as the study population, and were identified from the national data registry of HIV diagnoses held by the Scottish Centre for Infection and Environmental Health (SCIEH).

All healthcare workers who had initiated HIV testing of an index patient (IP) were contacted, and invited to participate in the study. Soundex code, date of birth, and sex were used to identify index patients. Additional information was sought at this initial contact, including likely mode of transmission, reason for testing, disease stage at diagnosis, and the location of ongoing clinical care. Mode of data collection from healthcare workers included face to face interview, telephone and postal communication.

Three and 9 months after initial contact, healthcare workers were re-contacted to document partner notification activity. A partner was defined as an individual with whom the IP had vaginal or anal sex or had shared injecting equipment. Partners were defined as current if the IP had continuing sexual or injecting contact at the time of their positive test. Data were collected on the extent and type of partner notification performed during the follow up period.

Table 1 Newly diagnosed HIV infections in Scotland (September 1995–August 1996) and CDC stage at diagnosis

CDC stage at diagnosis	Diagnoses identified by PN	Diagnoses NOT identified by PN
A	14 (74%)	36 (38%)
B	5 (26%)	31 (33%)
C	0 (0%)	28 (29%)
Total	19 (100%)	95 (100%)

Results

INDEX PATIENT CHARACTERISTICS

Sex and risk category

Of 125 individuals diagnosed during the study period, five were ineligible for the study (two tested post mortem, two did not return for their results, and one was a child) and no information was available for a further six. Of the remaining 114, 92 (81%) were male (mean age 34.5 years, standard error (SE) 1.0) and 22 female (mean age 33.1 years, SE 1.8). Presumed mode of HIV acquisition was sex between men in 56 cases (49%), heterosexual contact in 41 (36%), injecting drug use in 13 (11%), and other means/unknown in four (4%).

Disease stage at diagnosis

Of the index patients who had tested for HIV following partner notification, a significantly higher proportion presented with CDC group A disease than index patients who had tested for other reasons (see table 1: 74% *v* 38%; Pearson's χ^2: $p<0.01$).

Healthcare setting of diagnosis

The majority of diagnoses (42; 37%) were made in a genitourinary medicine clinic setting, 32 (28%) in infectious diseases departments, 18 (16%) in general practice, and 22 (19%) in other sites.

Notification of current partners (see fig 1)

Information on current partners was available for 102 index patients (89%). Notification of partners was not applicable for 47 of the 102 (25 had no current partner at risk and 22 had partners who were already known to be HIV positive). The remaining 55 index patients reported a total of 63 current partners at risk of infection, of whom 51 were notified (81% of identifiable partners at risk). Forty four partners were confirmed to have had HIV tests, of whom 12 were positive; one HIV positive partner was already aware of their HIV status, but had not disclosed this information to the IP.

Notification of previous partners (see fig 1)

Of the 114 index patients, information on previous partners was only available for 56 (49%). Of these, partner notification was not applicable for 30 (28 index patients considered that they had no previous partner at risk; two partners were already known to be HIV positive). The remaining 26 index patients reported a total of 46 previous partners at risk of infection, of whom 12 were notified (26% of total identifiable partners at risk). Four partners subsequently tested for HIV, of whom one was positive; this individual had been diagnosed prior to notification, but had not disclosed this information to the IP.

Method of notification

Notification of a total of 63 partners took place; this was patient led in 55 and in the remaining eight was performed by the provider, in the presence of the index patient. True provider led partner notification (performed in the absence of the IP) did not occur.

Discussion

Current guidelines advocate antiretroviral treatment before substantial immunological damage has occurred.[5] In the present study, only 26% of index patients who were diagnosed following partner notification had advanced disease (CDC groups B/C), contrasting with 62% of those diagnosed in other circumstances.

Partner notification is thus a promising strategy for identification of HIV positive individuals at an early stage. Given the clinical effectiveness of antiretroviral therapy, the potential health gain from partner notification deserves renewed attention.

The overall yield of new diagnoses from partner notification was 23%, with 11 of 48 partners testing positive for the first time. This is consistent with comparable studies in Sweden[6] and England[7] where yields were 15%

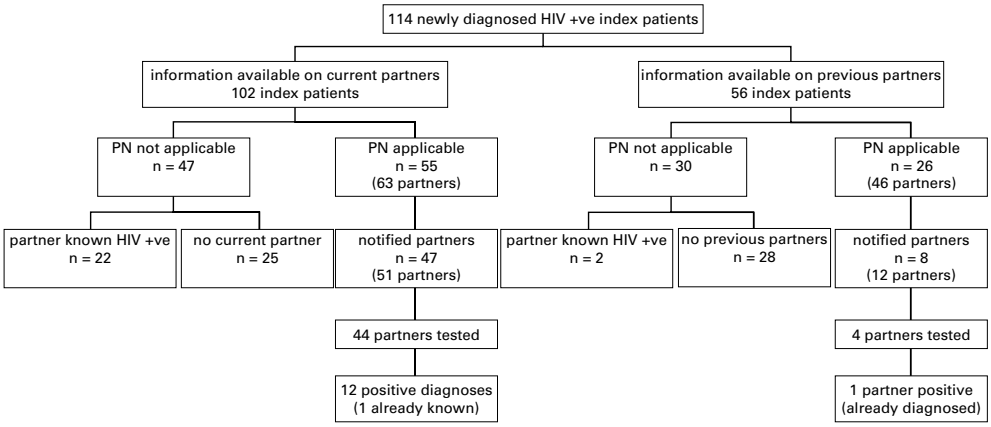

Figure 1 Outcome of partner notification for 114 individuals newly diagnosed with HIV infection in Scotland (September 1995–August 1996).

and 19% respectively. However, there appears to be great scope for improvements in the partner notification process for previous partners.

Partner notification was actively discussed and encouraged in a wide range of healthcare settings, carrying important implications for training, quality standards, and clinical governance. Future guidelines and educational initiatives should be multidisciplinary and should focus on the processes involved in partner notification to optimise long term health gain from this potentially effective public health strategy.

Conflict of interest: none

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Contributors: NM contributed to the original study design, provided clinical supervision for the study, and wrote the first draft of the paper; AS contributed to the original study design and subsequent data analysis, reviewed the first draft of the paper and wrote the final version of the paper; KL was national study coordinator, collected and analysed all data and reviewed the paper at all stages; AT contributed to data analysis and reviewed the paper at all stages; SB contributed to the original study design, provided statistical advice and reviewed the paper at all stages; SH performed statistical analyses, contributed to data interpretation and reviewed the paper at all stages; DG contributed to the original study design, data interpretation and reviewed the paper at all stages; A-MW coordinated the original European Concerted Action initiative on HIV partner notification in eight European countries, from which the present study evolved

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